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Mrs. Bartlett.

By description & Senting.

John L. Attee

admitted March 9th 1820

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On Hydrocephalus Acutus.

Preface.

One of the most fatal and ungovernable diseases incident to childhood, forms the subject of my inaugural thesis. It is a disease, whose pathology is still obscure, and whose remedial treatment, is as yet extremely uncertain. I do not presume, to add any thing new or interesting, either to the pathology, or treatment of this disease. I have, succinctly, drawn up a few observations on its nature and cure. Such as it is, I submit with much respect and deference, to the examination of those, who are to decide on its merits; being well assured, that it will meet with that indulgence, which the first literary attempts of inexperienced youth, are entitled to receive from the votaries of science.

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Dr. Whist was the first physician, who described Hydrocephalus Acutus, as a distinct disease. He ascribed the disease to a state of activity in the vessels of the brain, in

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consequence of which the exhalant arteries throw out a greater quantity of fluids, than the absorbents can take up. Dr Quin was the first who combatted this erroneous idea of the nature of this disease; He showed, that it consisted in a state of the brain, directly the reverse of activity; namely, in an inflammatory action of that organ. Drs Goddard and Withering seem to have entertained similar views. Dr Rush developed these ideas of the pathology of this disease more fully, and all modern writers, with the exception of Larocque and perhaps a few others, have adopted these sentiments. Dr Larocque supposed torpor of the absorbents of the brain, to be the cause of hydrocephalus internus. In this opinion, however, he is followed by no one else.

Within a few years past, the pathology of this disease has been much elucidated. Sympathy, which seems to have an agency in so many of the phenomena, both of health and disease, has lately been called in, to account for circumstances connected with this disease, altogether inexplicable on other principles. I allude to the evident connection which subsists between morbid affections of the chylopoietic viscera and hy-

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diopathic symptoms; a connection, which it is of the almost importance to keep in mind, in conducting our curative treatment -

It appears to me that this disease may, with great propriety, be divided into two varieties, *idiopathic* and *sympathetic*. By *Idiopathic hydrocephalus*, I understand that form of the disease, which depends on a primary or idiopathic inflammatory action of the capillaries of the brain; and which corresponds with what Dr Abercrombie* has ascribed under the name of "Chronic inflammation of the brain". By *Sympathetic hydrocephalus**, I would understand that variety of this malady, which arises from primary irritation seated in the chyliferous viscera. These two varieties are, I believe, founded in nature, and may generally, I feel persuaded, be distinguished, by a careful attention to the symptoms in the forming and first stages.

Symptoms of Idiopathic Hydrocephalus Acutus.

Languor, for a day or two; followed by an accession of fever, ushered in sometimes by shivering. Oppression and

* See No. 85 of the Edinburgh Medical & Surgical Journal.

* See Dr. Joseph Shapland's Therapeutics in Vol. 2^o

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unwillingness to be disturbed; severe pain in the head, not
 at first confined to one spot, but darting through it in various
 directions; extending frequently down the neck to the shoulders;
 face flushed, and intolerant of light; pains in different
 parts of the body; pupil usually contracted; eyes exquisitely
 sensible to the light, and sometimes suffused; tongue white
 moist, and sometimes quite clean; sleep disturbed, with
 starting and frightful dreams; grinding of the teeth during
 sleep; bowels generally costive, though frequently natural, and
 sometimes affected with diarrhoea; pulse frequent, tense,
 and quick; slight activeness at last begins to appear, which
 is perhaps only observed during the night, or upon awaking
 out of sleep; sometimes the patient lies arising, or talking
 incoherently, but out of which state he can be readily roused,
 so as to talk sensibly. "In other cases, instead of activeness,
 there occurs a peculiar forgetfulness, the patient using one
 word instead of another, mistaking persons and things,
 mistaking the day, or the time of day, or showing, in some
 similar manner a confusion of thought." The second stage
 now begins, which is marked, by a sinking of the pulse, from

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to former accelerated state, to the natural standard, and
often much below it; and by the coma, which becomes now
a predominant symptom; the pain becomes less violent;
the eye loses its sensibility, becoming dull and vacant, often
with squinting, and double vision, succeeded sometimes by
Miosis and dilated pupil, even before the patient falls
into perfect coma. The pulse, having continued slow, usually
for two or three days, sometimes but a few hours, now rises again,
and to extreme frequency. This marks the commencement of
the third stage. The pulse is through the whole course of
the disease very unequal in frequency, varying perhaps every
minute or every hour that it is counted. This remarkable in-
equality is not observed in other febrile diseases, except from
some temporary cause, and is therefore a symptom which
deserves much attention.* The patient becomes now perfect-
ly comatose, and is generally affected with paralysis of one
side, or of an arm, or leg, followed with convulsive affections
and death.

The duration of this disease varies from five or
six days to three or four weeks. About the commencement

* *Hyperæmia, ibid.*

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of the second stage, there is a remarkable remission in all the symptoms of the disease, so as often to create the most sanguine, though fallacious hopes, of recovery.

The Symptoms of the Sympathetic Hydrocephalus Acutus, differ from those of the preceding variety, chiefly, in the forming and first stages of the disease. In these stages, we may always observe, in this variety, various symptoms of derangement in the functions of the chylificative viscera, existing generally for several weeks previous to the actual occurrence of the cephalic symptoms.

The little patient complains of pains in the belly, is either very constipated, or afflicted with a looseness of the bowels; stools pale, green, and frothy in appearance; appetite, either none, or voracious; complexion, sallow; disposition fretful and morose; and in general all the symptoms indicative of a morbid state of the digestive organs. In this state, he frequently remains for several weeks, after which he begins to get worse. The pain and dulness of the head now come on, and gradually become more severe; he vomits on getting up in the morning, but still is able to be up during the day.

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After a few days longer the pain in the head becomes more
severe, and indeed extremely so; he sighs frequently, is dull,
and requires his head to be supported. The stools, at first
clayey, as the disease advances become of a gelatinous consist-
ence, dark green, of a sickly smell, and sometimes as dark
as tar. The child complains of pains, not only in the
head, but also in different parts of the body, and particular-
ly the abdomen; these pains are often astonishingly acute.
The symptoms of this variety, during the second & third
stages of the complaint, do not differ manifestly from those
which have been mentioned as occurring in these stages, in
the variety already described.

Daily observation demonstrates the close sympathetic con-
nection, which subsists between the chyliferous viscera and
the brain. Drs. Sydenham, Hamilton, Abernethy, Keilignill, &c.
mention a variety of cases, where the agency of such a sympathetic
action is conspicuously pointed out. Dr. Sydenham, in particu-
lar, has shown in his valuable work, on *Hydrocephalus*
Internus, that this disease does frequently depend on a morbid
state of the abdominal viscera. Dr. Chapman also, backed

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a similar pathology in his lectures, and in his valuable work on *Therapeutics* &c. The limits of this Essay, do not allow us to enter more fully into the arguments which may be adduced in favour of this pathology of Hydrocephalus. It may be said, that what I have here called sympathetic hydrocephalus, is, in reality, nothing more than a variety of mania, according to Sydenham; and, that it is improperly designated hydrocephalus, since, in many cases, no effusion of serum is found to have taken place, in the brain, or its meninges. It must, however, be observed, that effusion is only one of the terminations, of that state of the vascular system, which exists in hydrocephalus; and that this morbid state of the capillaries, is in fact the real cause of the symptoms in this disease. I do not conceive, that the morbid condition of the vessels of the brain, does necessarily terminate in effusion, when it proves fatal. Dr. Abercrombie mentions as a termination of this state of the cerebral vascular system "a peculiar distraction, or disorganization of the central parts of the brain, — the forix, septum lucidum, and the white medullary matter which lines the ventricles —

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"This I consider," continues Dr. Abercrombie, "as an appearance of very great importance, and one which, perhaps, has been too little attended to. It consists of those parts being broken down into a white soft pulpy mass, retaining their natural colour, but losing their figure and consistence; so that the foramen cannot be raised, and the septum lucidum is found perforated by a large ragged opening. This appearance I have generally observed in those cases, in which there has been some ~~or~~ disorganized pain. I think, that there is no reason to doubt, that it is the termination of inflammation of these central parts, probably a modification of suppuration, and acquiring its peculiar character from their peculiar structure." This peculiar disorganization occurs with and without effusion.

There is indeed, much reason to believe, that, in our pathology of these affections, we attach too much consequence to the effusion; and ascribe to it symptoms which we have every reason to believe may exist without it. That the effusion of serum into the brain, is not generally the cause of those symptoms, which appear in the last stage of the disease in question, appears extremely probable from the evidence disclosed to us by

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apoplexy - Morgagni mentions a man, who had an attack of hemiplegia, and completely recovered from it; after two years he died suddenly, from suffocation, having never, since his former illness, shown any symptom of disease in the head, except occasional headache - On dissection, eight ounces of fluid were found in the ventricles of the brain.* Dr. Robinson describes the case of a man, in whom he found on dissection, about eight ounces of fluid in the ventricles, besides a considerable quantity under the arachnoid coat - He died suddenly, after being weakened by a febrile attack, but without any symptoms indicating disease of the brain.*

Dissections also demonstrate that all the symptoms of hydrocephalus may be present without any effusion having taken place - From these considerations, it would seem to be sufficiently proven, that the coma, and other symptoms which attend the ordinary cases of hydrocephalus, are, not the result of the effusion of serum into the brain, but of the morbic condition of the brain, which produces the effusion -

This morbid condition consists, without doubt, either in chronic inflammation of the brain, or in some condition of the vessels

* Med. Trans. of the Coll. of Physicians of London, vol. 5th

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Hydrocephalus, I consider, therefore, to be a disease, in which the vessels of the brain, are in a state of morbidly increased action, depending, sometimes, on idiopathic affection of the brain; and at other times, arising, sympathetically, from a functional or organic affection of the abdominal viscera, but, especially, of the liver and stomach; and, that all the symptoms which arise in this disease often originate from this morbid state of the brain alone; in which effusion has no part.

Treatment.

In the treatment of this disease, we must constantly have two principal indications in view - To lessen the action of the vessels of the brain, and the great determination of blood to the head - and, to remove those causes of irritation, wherever they be seated, which have a tendency to keep up a morbid condition of the brain.

In the commencement of the symptoms of Hydrocephalus, it will be proper to direct our attention to the alimentary canal. Active cathartics should be administered; and if the bowels be torpid as they generally are, and the faces have a pungent

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factor, we must, by steadily pursuing the purgative plan, endeavor to effect a change in the appearance of the stools. By this plan, we effect, generally, a most important change in the hepatic system, alimentary canal, and all the parts, whose morbid condition, have a tendency, sympathetically, to keep up, more or less, cerebral action. The cathartics should always be combined with calomel. At the same time, that we purge the patient with calomel, we must apply leeches to the temples. General bleeding, also, if the pulse is tense and frequent, should be copiously resorted to. If, by these means, we do not arrest the disease in its first stage, we must shave the head, and apply blisters; these may be dressed with mercurial ointment.

After having, however, by cathartic remedies, sufficiently reduced the system, our chief dependence, in the second stage, must be placed in the use of calomel, in frequent doses; and, indeed, on the prompt and decisive exhibition of Mercenaries, as well by friction, as internally, in the first and second stages of this complaint, the happy issue of the disease does frequently depend. The calomel may be united with nigitates, but I question very much whether any advantage is derived from such a combination.

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Internal frictions of mercurial ointment, should be resorted to, if the calomel, exhibited internally, does not appear to affect the system soon enough. It is probable that the evacuations, arising from the calomel in this disease, arise, in many cases, more from its salutary action on the morbid condition of the chylopoietic viscera, than from its affecting the salivary glands, and thereby producing a revulsion from the brain.

By active purging, & leeching or cupping the temples, in the early stage, we may generally succeed in arresting the progress of the disease. It is, therefore, most particularly to be kept in mind, that in this stage, our chief reliance on the efficacy of medicine ought to be placed. Let not the physician, in doubtful cases, hesitate, and use a feeble practice, under the hope that it may not be this disease; which, when it has taken a fair hold on the patient, is so difficult to overcome. Active purging, and general & local depletion, should at once be resorted to. The bowels, for several days after the disappearance of all hydrocephalic symptoms, be kept perfectly loose.

Dr. Sydenham says, he has applied leeches and blisters to the

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region of the liver, to prepare the way for, and cooperate with,
the purgative medicines, in restoring the viscus to a sound
state - and, he thinks, considerable benefit was derived from
this practice -

The general bleeding, though evidently, most bene-
ficial in the early stage, may be repeated at any time,
during the progress of the disease, in a stout child, & if it
is otherwise indicated by the state of the pulse -

I have thus drawn up, concisely, a few observations on this
formidable disease - I am fully sensible that they are de-
ficient - I submit them, with sincere respect, to the judi-
cial faculty of my Alma Mater -

